

REMARKS

Claims in the case are 1-15. Claims 1-12 and 14 have been amended herein. No claims have been added, and no claims have been cancelled herein.

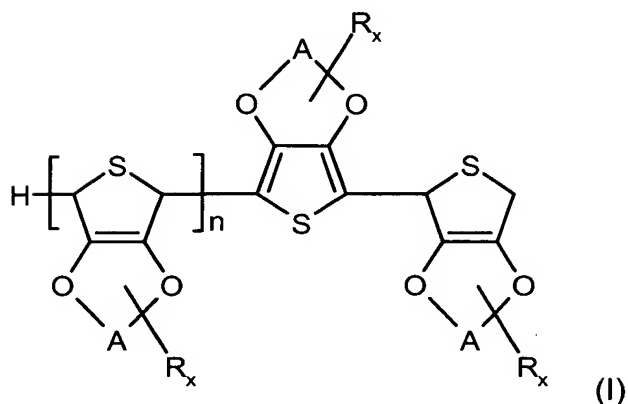
The claims have been amended as to form, e.g., by inserting indefinite and definite articles where appropriate, including indentation, replacing "characterized in that" with --wherein--, and replacing "according to" with --of--. The claims have also been amended to include proper Markush language where appropriate. Claims 5 and 12 have each been amended to stand alone as independent claims by removing incorporation by references to Claim 1 therefrom.

Claims 1-4 and 11-15 stand rejected under 35 U.S.C. §102(b) as being anticipated by Sankaran and Reynolds, *High-Contrast Electrochromic Polymers and Alkyl-Derivatized Poly(3,4-ethylenedioxythiophenes)*, MACROMOLECULES 1997, 30, 2582-2588 (**Sankaran et al**), or Groenendaal, Jonas, Freitag, Pielartzik and Reynolds, *Poly(3,4-ethylenedioxythiophene) and its Derivatives: Past, Present, and Future*, ADV. MATER. 2000, 12, No. 7, 481-494 (**Groenendaal et al**). This rejection is respectfully traversed in light of the following remarks.

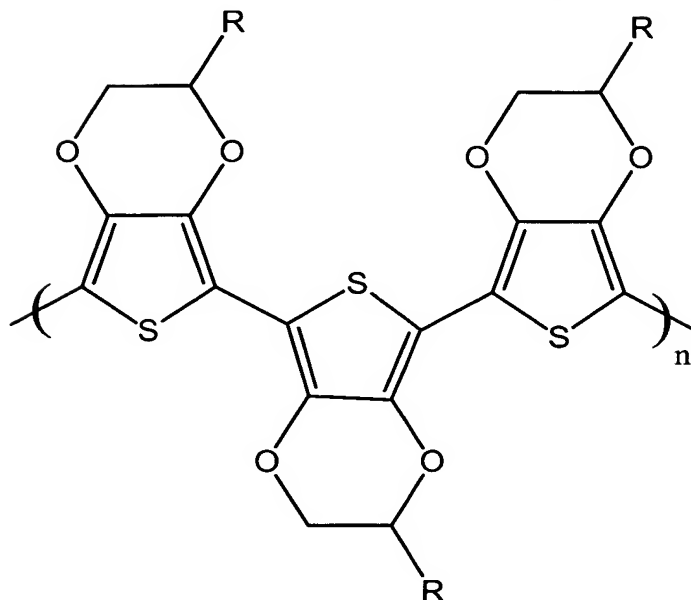
Sankaran et al disclose the synthesis of derivatives of 3,4-ethylenedioxythiophene (EDOT), in particular 5-octyldioxenal[2,3-c]thiophene (EDOT-C₈) and 5-tetradecyldioxeno[2,3-c]thiophene (EDOT-C₁₄). See the abstract of Sankaran et al.

Contrary to the assertions made on page 2 of the Office Action of 19 August 2004, Sankaran et al do not disclose the compound represented by Formula-(I) of Applicants' claims. On page 2 of the Office Action reference is made to the poly(ethylenedioxythiophene) represented by formula-1 (PEDOT-(1)) on page 2582 of Sankaran et al. The repeat unit of Sankaran et al's PEDOT-(1) is structurally dissimilar to and does not reach or touch upon the dimmers and trimers of Formula-(I) of Applicants' claims. For purposes of comparison, Applicants' Formula-(I) and Sankaran et al's PEDOT-(1) are reproduced as follows.

Formula-(I) of Applicants' Claims



PEDOT-(1) of Sankaran et al



The 3,4-ethylenedioxythiophene residues on the right and left of PEDOT-(1) of Sankaran et al are structurally distinguishable from the right and left residues of Applicants' Formula-(I). In particular, the compounds of Sankaran et al do not include, and are not suggested as including, dihydro thiophene groups.

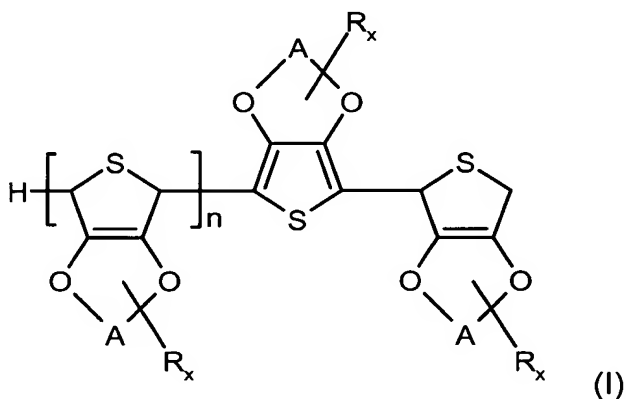
Sankaran et al do not disclose the synthetic method of Applicants' claims. Sankaran et al disclose the polymerization of 3,4-ethylenedioxythiophene **monomers** to form PEDOT polymers. See pages 2582-86; and in particular pages

2583-84 and Scheme 1 of Sankaran et al. Sankaran et al do not disclose the polymerization of dimmers and trimers, or the dimmers and trimers according to Formula-(I) of Applicants' present claims.

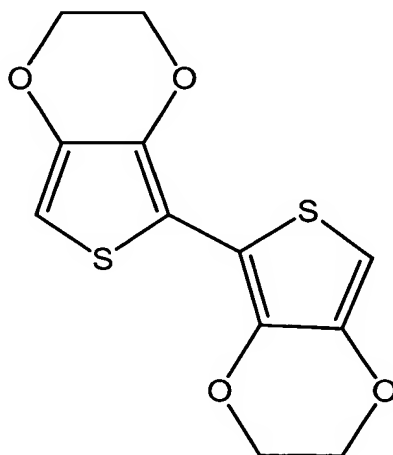
Groenendaal et al disclose general information relating to poly(3,4-ethylenedioxythiophene) polymers. See the abstract of Groenendaal et al.

Contrary to the assertions made on page 2 of the Office Action, the formulas (24) and (25) on page 485 of Groenendaal et al are not the same as and do not reach or touch upon the dimmers and trimers represented by Formula-(I) of Applicants' claims. For purposes of comparison, Applicants' Formula-(I) and formulas (24) and (25) of Groenendaal et al are reproduced as follows.

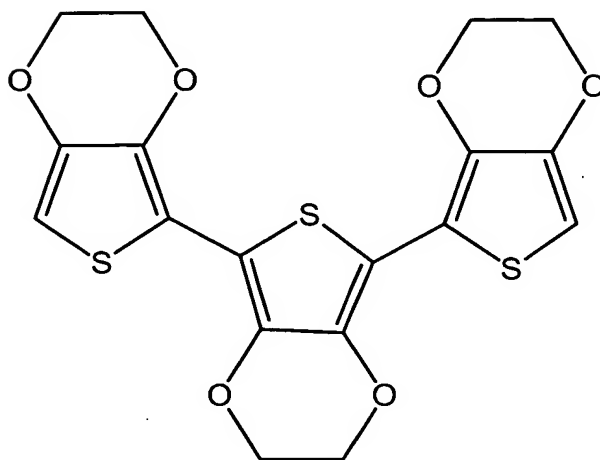
Formula-(I) of Applicants' Claims



Formula (24) of Groenendaal et al



Formula (25) of Groenendaal et al



The right residue of Groenendaal et al's Formula-(24), and the right and left residues of Groenendaal et al's Formula-(25) are structurally distinct from the right and left residues of Applicants' Formula-(I). In particular, the compounds of Groenendaal et al do not include, and are not suggested as including, dihydro thiophene groups.

Groenendaal et al disclose the polymerization of **monomeric** 3,4-ethylene-dioxythiophene derivatives. See page 486-487, and Scheme-7 on page 487 of Groenendaal et al. Groenendaal et al do not disclose the polymerization of dimmers and trimers, or the dimmers and trimers represented by Formula-(I) of Applicants' claims.

In light of the preceding remarks, Applicants' claims are deemed to be unanticipated by and patentable over Sankaran et al or Groenendaal et al. Reconsideration and withdrawal of the present rejection is respectfully requested.

Claims 5-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Sankaran et al or Groenendaal et al. This rejection is respectfully traversed with regard to the following remarks.

Sankaran et al disclose the synthesis of 3,4-ethylenedioxythiophene monomers that involves the intermediate formation of a diester thiophene, that is hydrolysed to form a thiophene diacid intermediate, which is then decarboxylated in quinoline with copper chromite. The thiophene diacid is disclosed by Sankaran et al as an intermediate in the synthetic formation of their EDOT-C₈ and EDOT-C₁₄ 3,4-ethylenedioxythiophene monomer derivatives. See the paragraph bridging pages 2583-84 of Sankaran et al.

Sankaran et al do not disclose, teach or suggest a method of forming dimmers and trimers, or the dimmers and trimers represented by Formula-(I) of Applicants' claims, which include dihydro thiophene groups.

Groenendaal et al disclose the polymerization of 3,4-ethylenedioxythiophene based monomers to form polymers therefrom. See page 486, right column of Groenendaal et al.


Groenendaal et al do not disclose, teach or suggest the formation or preparation of dimmers and trimers, or the dimmers and trimers represented by Formula-(I) of Applicants' claims, which include dihydro thiophene groups.

"Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference." *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000). Modifying "prior art references without evidence of such a suggestion, teaching or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight." *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (citations omitted).

In light of the preceding remarks, Applicants' claims are deemed to be unobvious and patentable over Sankaran et al or Groenendaal et al. Reconsideration and withdrawal of the present rejection is respectfully requested.

In light of the amendments herein and the preceding remarks, Applicants' presently pending claims are deemed to define an invention that is unanticipated, unobvious and hence, patentable. Reconsideration of the rejections and allowance of all of the presently pending claims is respectfully requested.

Respectfully submitted,

By 
James R. Franks
Agent for Applicant(s)
Reg. No. 42,552

Bayer MaterialScience LLC
100 Bayer Road
Pittsburgh, Pennsylvania 15205-9741
PHONE: (412) 777-3808
FACSIMILE PHONE NUMBER:
412-777-3902
s/rmc/jrf/0229